WINGS OVER WHITEMAN AIR SHOW

CELEBRATING 100 YEARS OF AIR DOMINATION

14-15 JUNE 2003

OVER 100 STATIC DISPLAYS
20 THRILLING ACTS

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- Parachute Teams
- TORA TORA TORA
- Harley Davidson Rolling Thunder
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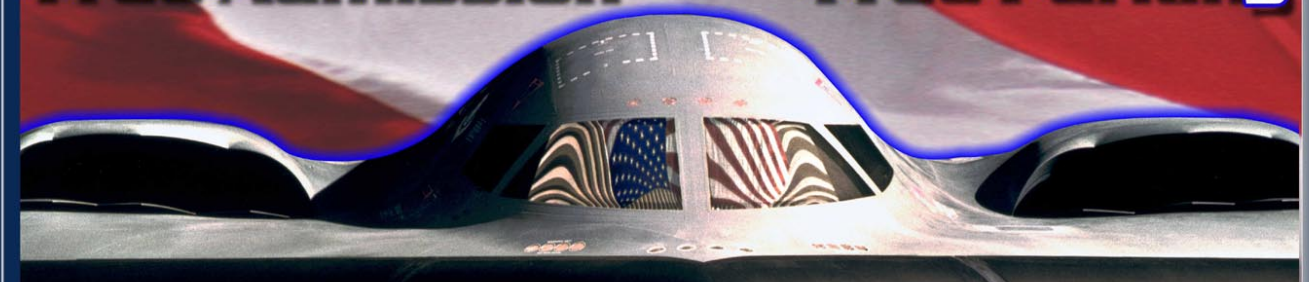
- Scale Model Competition & Show
- Air Force Reserve Jet Car
- Masters of Disaster
- Hot Air Balloons
- Vintage Aircraft

Free Admission **Free Parking**



Centennial of Flight

Gates Open at 9a.m.

660-687-6111 http://www.whiteman.af.mil/airshow/

COMMENTARY

Commander's Welcome

By Col. Doug Raaberg
509th Bomb Wing Commander

On behalf of the Whiteman team, welcome to Whiteman Air Force Base and the "Wings Over Whiteman" air show.

This year we celebrate the Centennial of Flight with static displays and demonstrations showcasing the evolution of flight. From the Wright Flyer to the B-2, aviation has come a long way. At whiteman , the 509th Bomb Wing is proud to have the most cutting edge , fully operational technology available.

The 509th BW and the B-2 have a rich heritage at Whiteman. We are host to the United States Air Force Reserve 442nd Fighter Wing, the Missouri Army National Guard 1-135th Aviation Battalion and the Navy Reserve Mobile inshore Undersea Warfare Unit 114. Together we form a team of more that 6,000 people who are active in the local communities. Our community partnership is renown.

The men and women of Whiteman continue to support Operation Iraqi Freedom. For the first time in the B-2's history, we deployed b-2s to a forward location. We conducted combat sorties throughout Iraq from the deployed location as well as from Whiteman.

Additionally, the 442nd FW deployed A-10s into the theater to provide close air support to coalition forces on the ground. Further mor, the MIUWU 114 and the 1-135 AB deployed in support of IOF.

We are very proud of our missions and the contributions we make to national defense. I hope you and your family have a safe, enjoyable visit to "wings Over Whiteman." Thank you for supporting the men and women in today's armed forces and particularly our United States Air Force.

Photo by Master. Sgt. Mike. Nixon

Terry Chamberlin (left) and Airman 1st Class Timothy Murphy, 509thMaintenance Squadron structure technicians, climb on top of the crew compartment of B-2 Spirit after it returned from a combat mission supporting Operation Iraqi Freedom. The two look over the entire surface of the aircraft after each flight to ensure there is no surface damage helping to ensure the bomber stays combat ready.

Whiteman Air Force Base history

Whiteman Air Force Base is located in Johnson County, Missouri, and is home to the U.S. Air Force's 509th Bomb Wing, Air Force Reserve's 442nd Fighter Wing, the Missouri Army National Guard's 1st Battalion 135th Aviation unit as well as the U.S. Navy Reserve Mobile Inshore Undersea Warfare Unit 114. The 509th is the host unit and is responsible for 21 B-2 Spirit bombers as well the aircraft of the associate units.

The base property covers 4,684 acres with a runway of 12,400 feet long by 200 feet wide. It is also responsible for a network of inactive Minuteman II intercontinental ballistic missile sites and launch control centers spread out over 5,300 square miles of central Missouri. The missiles were part of the 351st Missile Wing which was inactivated in July 1995.

The base originally activated Aug. 6, 1942, as Sedalia Glider Base, during the U.S. military's mobilization following the Japanese attack on Pearl Harbor. In November 1942, the installation became Sedalia Army Air Field and was assigned to the 1st Troop Carrier Command of the Army Air Force.

The field served as a training site for glider tactics and paratroopers. After the war ended, Sedalia became a transition point for C-46 and C-47 crews. During the massive demobilization in the mid-1940s, the base was inactivated and most of the buildings were abandoned.

In August 1951 the base was reactivated and turned over to Strategic Air Command. SAC activated the 4224th Air Base Squadron to supervise the rehabilitation and construction of a new base, Sedalia AFB. The 4224th continued its activities until Oct. 20, 1952, when it inactivated and the 340th Bombardment Wing activated at the base. Runway construction was completed in November 1953, and the wing was equipped with the B-47 Stratojet and the KC-97 Stratofreighter tanker.

On Dec. 3, 1955, Sedalia AFB was renamed Whiteman AFB in honor of 2nd Lt. George A. Whiteman, a Sedalia native killed during the Japanese attack on Pearl Harbor, Hawaii, Dec. 7, 1941. Lieutenant Whiteman was stationed at Bellows Air Field, Oahu, at the time of the attack. He managed to reach his fighter aircraft and attempted to engage the Japanese, but was attacked by enemy fighters shortly after take-off and crashed. Lieutenant Whiteman died before rescue crews could get to him.

Whiteman Air Force Base, circa 1942.

In June 1961, the Department of Defense announced that Whiteman had been chosen as the location of the fourth Minuteman ICBM wing. On Jan. 17, 1962, the contract was awarded for the construction of 150 hardened, underground launch facilities and 15 launch control centers.

The project called for the excavation of 867,000 cubic yards of earth and rock. Contractors used 168,000 yards of concrete, 25,355 tons of reinforcing steel and 15,120 tons of structural steel. The project also called for the installation of a vast underground intersite network. Enough cable was installed that if stretched out in a line it would run from Whiteman AFB to 100 miles beyond Los Angeles.

Construction of the complex was completed in June 1964 and SAC activated the 351st Strategic Missile Wing at Whiteman on Feb. 1, 1963. The 340th Bombardment Wing was gradually phased out during the same year with its remaining assets transferring to Bergstrom AFB, Texas, on Sept. 1, 1963.

Whiteman employed the Minuteman I weapon system until the mid-1960s when a force modernization program converted the Minuteman I to the Minuteman II. Under the provisions of the Strategic Arms Reduction Treaty of 1991, the Minuteman II system was selected for inactivation. After 32 years of providing deterrence during the Cold War, the 351st MW was inactivated on July 31, 1995.

On Dec. 8, 1993, India-02 became the first of Whiteman's 150 Minuteman launch facilities to be imploded. Four years and one week later, on Dec. 15, 1997, the last Whiteman silo was imploded. Hotel-11, west of Eldorado Springs, Mo., passed into history when base officials and VIPs turned the keys that triggered the implosion destroying the site.

On Jan. 5, 1987, U.S. Representative Ike Skelton announced that the first operational B-2 Spirit bombers would be based at Whiteman. Nearly $470 million in construction broke ground in 1988 for B-2 operations, maintenance and support infrastructure.

The 100th Air Division activated at Whiteman on July 1, 1990, and assumed host responsibilities for both the 351st SMW and the new B-2 wing. SAC inactivated the 100th AD on July 26, 1991, when the Air Force directed air divisions be eliminated and host responsibilities reverted to the 351st SMW. On Sept. 30, 1991, the 509th Bomb Wing moved from Pease AFB, N.H., to Whiteman without aircraft or people in an unmanned and non-operational status.

With the end of the Cold War, the Air Force disestab-

See HISTORY, Page 10

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The deadline for article submissions to the Whiteman Spirit is noon Friday. If a holiday falls on Friday, the deadline then becomes 4 p.m. Thursday. Articles will be published on a space-available basis. Submission doesn't guarantee publication.

For more information, call the *Whiteman Spirit* office at 687-6133, fax us at 687-7948, e-mail: whiteman.spirit@whiteman.af.mil or write to us at:

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History of the 509th Bomb Wing

The 509th Bomb Wing has historical roots to its World War II ancestor, the 509th Composite Group.

The U.S. Army Air Force activated the group Dec. 17, 1944, at Wendover Army Air Field, Utah, with one mission — drop the atomic bomb. Led by Col. Paul W. Tibbets Jr., the group transferred to North Field, Tinian, The Marianas in the South Pacific in May 1945.

On Aug. 6, 1945, the 509th fulfilled its destiny when the B-29 "Enola Gay," piloted by Colonel Tibbets, dropped the first atomic bomb and destroyed Hiroshima, Japan. On Aug. 9, 1945, the group dropped a second bomb on Nagasaki, Japan. Within days, the Japanese sued for peace and World War II ended.

Operation Crossroads

Upon returning to the United States in late 1945, the group was assigned to Roswell Army Air Base, N.M.

It became the core of the newly created Strategic Air Command. In August 1946, the redesignated 509th Bombardment Group returned to the Pacific to participate in Operation Crossroads.

During this operation, the B-29 "Dave's Dream" dropped an atomic bomb on an armada of obsolete and captured ships moored off the Bikini Atoll.

SAC activated the 509th Bombardment Wing at Roswell on Nov. 17, 1947, and assigned the bombardment group to the wing.

The bombardment group was inactivated five years later with its lineage and honors transferred to the wing.

The wing's mission expanded in July 1948 when it received the 509th Air Refueling Squadron and its KB-29Ms, modified B-29 bombers capable of providing air-to-air refueling for bombers. With the addition of tankers, the 509th's bombers could reach nearly any point on earth.

New Decade

The dawning of a new decade brought more changes to the wing. In June 1950, the wing received the B-50 and in January 1954, the KC-97 aerial tanker replaced the aging KB-29Ms.

The wing entered the jet age in June 1955 when it received the first all-jet bomber, the B-47 Stratojet.

The 509th Bombardment Wing moved to Pease AFB, N.H., in August 1958.

Although the B-47s were scheduled for retirement along with the 509th in the early 1960s, SAC kept the 509th alive and equipped the wing with B-52 Stratofortress bombers and KC-135 tankers. It received its first B-52s and KC-135s in March 1966.

During this period the wing's B-52s deployed to Guam and flew Arc Light combat missions over Southeast Asia. In April 1968 and April 1969, the wing began six-month deployments to the Western Pacific.

FB-111 Era

During its last deployment, SAC informed the 509th that the wing would trade its B-52s for the new FB-111 medium bomber. The wing began receiving the fighter bomber in December 1970.

As part of the Base Realignment and Closure Commission's recommendations, Pease AFB was one of several Air Force installations to be closed in 1988.

SAC moved the 509th Bombardment Wing on Sept. 30, 1990, without equipment or people to Whiteman AFB, Mo., to become the first B-2 Spirit,wing.

While Whiteman AFB was prepared for the new B-2 mission, the wing remained inactive and SAC redesignated the it as the 509th Bomb Wing.

On June 1, 1992, the Air Force disestablished SAC and the 509th became part of the newly created Air Combat Command.

On April 1, 1993, the Air Force returned the 509th to operational status. It assumed host responsibilities for Whiteman AFB from the 351st Missile Wing on July 1, 1993.

B-2 Spirit

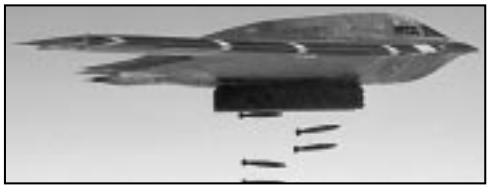
The first fixed-wing aircraft, a T-38 Talon with a B-2-style paint scheme, joined the wing July 20, 1993.

The first B-2 Spirit bomber, *Spirit of Missouri*,arrived Dec. 17, 1993, and flew its first operational B-2 mission a week later.

Another aircraft arrival event occurred on May 16, 1996, when the 11th B-2 arrived. Unlike its predecessors, this aircraft was the first combat-capable B-2 delivered to the Air Force.

The 509th once again made history when on Sept. 17, 1996, when three B-2s dropped three inert GBU-36 weapons, the highly accurate Global Positioning System-Aided Munitions which used the GPS-Aided Targeting System.

The crew of the Enola Gay pose before take-off on Aug. 6, 1945.



The first B-2, *Spirit of Missouri,* arrived at Whiteman Air Force Base on Dec. 17, 1993, exactly 90 years after the Wright brothers first flight.

On Oct. 8, 1996, three B-2s visited the Nellis range and released 16 2,000-pound class GBU-36 bombs from an altitude of 40,000 feet. Amazed range personnel discovered all 16 projectiles hit close enough to their targets to be confirmed as 16 kills.

The results impressed former Air Force Chief of Staff Gen. Ronald Fogleman so much, that he announced at a mid-December press conference the 509th and the B-2 would reach limited operational capability on Jan. 1, 1997.

Since its arrival at Whiteman, the 509th underwent inspections, tests and other challenges to ensure it was ready to return as an integral part of the nation's defensive coalition.

Throughout 1997, the pace heightened with 509ers constantly rising to the challenge. By early spring, the hard work paid off and the 509th attained the all-important Initial Operational Capability.

By achieving IOC, the B-2 became a part of America's war plans and was ready to respond should the need arise.

The 509th closed out the year with recognition for its achievements. In October 1997, the Air Force announced the 509th had earned its fourth Air Force Outstanding Unit Award. The award covered the June 1, 1995, through May 31, 1997, period and paved the way for 1998.

B-2 Milestones

As more B-2s arrive at Whiteman, the 509th continues to pioneer the operation of this unique aircraft. Some significant firsts associated with the B-2 include:

✔ *Spirit of California* makes the first operational delivery of munitions on Sept. 23, 1994.

✔ The B-2 appears at a Red Flag exercise for the first time on Jan. 20, 1995.

✔ *Spirit of Missouri* travels to Europe June 10-11, 1995, marking the first time a B-2,traveled to that continent.

✔ *Spirit of Kansas* flies the first B-2 mission over the Pacific Ocean on Sept. 1, 1995.

✔ The bombers scored 16 kills with 16 munitions.

✔ The first operational combat mission was flown on the first night of Operation Allied Force, March 24, 1999.

✔ During OAF, the B-2s flew less than 1 percent of the combat sorties but dropped 8 percent of the bombs.

Operation Allied Force

On March 23, 1999, the maiden combat voyage of the B-2 Spirit occurred. For the next two months, the 509th would generate 49 B-2 sorties with each sortie lasting an average of 29 hours. The B-2s dropped more than 650 bombs and would contribute less than 1 percent of all NATO sorties. Still, the aircraft delivered more than 11 percent of the weapons dropped. By the time of that last sortie on May 21, the operation represented the first sustained offensive combat air operations conducted solely from U.S. soil. The sorties also marked the first time the 509th tasted combat since its B-52D days in September 1969 during the Vietnam conflict.

Operation Enduring Freedom

Following the horrific tragedies wrought upon the United States on Sept. 11, 2001, B-2 bombers and aircrews from the 509th led America's strike force, and served as the first to strike targets in Afghanistan. In October 2001, the 509th "kicked down the door" and led the fight in support of Operation Enduring Freedom.

The 509th contributed to the success of the war effort by flying six combat missions — two on each of the first three nights of the air campaign . B-2a returned from an additional six combat support missions from a forward operating location to Whiteman. The B-2 crews logged a 44.3-hour combat sortie during these missions.

On Sept. 11, members of the 509th provided support at Whiteman as they joined forces with the 314th Airlift Wing, Little Rock AFB, Ark., and the Missouri Air National Guard's 139th Airlift Wing, St. Joseph, Mo., and helped send Missouri Task Force-1 to assist in rescue efforts at the World Trade Center. The task force was comprised of 64 people and four dogs.

In October 2001, the *Spirit of Mississippi* and the *Spirit of Louisiana* launched from Whiteman and flew sorties lasting 43.5 and 43.2 hours long, respectively. After each aircraft dropped bombs on targets in Afghanistan, they went on to land at Diego-Garcia. There, they conducted engine running crew changes, and returned to Whiteman on Oct. 8 2001, following sorties lasting 29.6 hours and 29.3 hours, respectively. The total engine run time for the two bombers was 73.1 hours and 72.5 hours, respectively.

The *Spirit of Georgia* and the *Spirit of America* bombed targets in Afghanistan, and then went on to land at a forward operating location following missions lasting 40.3 and 44.3 hours, respectively.

On Nov. 8, 2002, new $26.8 million Low Observable Restoration Facility opened at Whiteman, with a ribbon cutting ceremony. The facility allows the B-2 to stay here instead of traveling to Palmdale Calif., in order to receive maintenance and restoration of its stealth skin.

To bring B2s' closer to combat operations, two B-2 shelters were completed at a forward operating location Nov. 28. This supported the developing capability to operate B-2s from FOLs — a capability used in Operation Iraqi Freedom.

Operation Iraqi Freedom

B-2 bombers and aircrews from the 509th led America's strike force again when coalition "shock air forces" aircraft flew nearly 1000 strike sorties hitting targets intended to end the regime of Saddam Hussein March 21 2003.

The "Shock and Awe" campaign was the first time in combat history , only precision - guided muntions were used in an effort to minimize collateral damage. The B-2 once again proved the overwhelming effectiveness of the combination of stealth technology and precision guided munitions.

The 509th's future

The wing will continue to lead the way in America's war on terror, ready to respond whenever the nation's leaders call. The men and women of the 509th Bomb Wing continue to develop and refine the capabilities of the B-2, ensuring it remains a vital centerpiece of national defense for the foreseeable future. After a half century of history, the unit is still America's "Defender Avengers," who say to the rest of the armed forces, "Follow Us."

A-10 Thunderbolt II

General Characteristics

Primary Function: A-10 — close air support, OA-10 — airborne forward air control
Contractor: Fairchild Republic Co.
Power Plant: Two General Electric TF34-GE-100 turbofans
Thrust: 9,065 pounds each engine
Length: 53 feet, 4 inches
Height: 14 feet, 8 inches
Wingspan: 57 feet, 6 inches
Speed: 420 miles per hour (Mach 0.56)
Ceiling: 45,000 feet
Maximum Takeoff Weight: 51,000 pounds
Range: 800 miles
Armament: One 30 mm GAU-8/A seven-barrel Gatling gun; up to 16,000 pounds of mixed ordnance on eight under-wing and three under-fuselage pylon stations, including 500 pounds of retarded bombs, 2,000 pounds of general-purpose bombs, incendiary and Rockeye II cluster bombs, combined effects munitions, Maverick missiles and laser-guided/electro-optically guided bombs; infrared countermeasure flares; electronic countermeasure chaff; jammer pods; 2.75-inch rockets; illumination flares and AIM-9 Sidewinder missiles.
Crew: One
Date Deployed: March 1976
Unit Cost: $8.8 million
Inventory: Active force, A-10, 72 and OA-10, 72; Reserve, A-10, 24 and OA-10, 12; Army National Guard, A-10, 64 and OA-10, 30

Air Force Reserve

The 442nd Fighter Wing, an Air Force Reserve Command unit, also makes its home at Whiteman Air Force Base.

This wing is the only AFRC fighter unit in Missouri and the eight adjoining states.

The nearly 1,000 active reservists assigned to the 442nd support, maintain or fly the A-10 and OA-10 Thunderbolt II, the first Air Force aircraft designed specifically for close-air support of ground forces in combat.

The A-10, also nicknamed the Warthog, is a simple, effective and survivable twin-engine jet aircraft that can be used against all ground targets, including tanks and other armored vehicles.

The average 442nd pilot has more than 2,900 flying hours with more than 1,500 hours in the A-10. The pilots have flown combat missions from Vietnam to Desert Storm to Bosnia and in aircraft as diverse as the F-100, the C-130 and the F-117.

The wing has a long and distinguished history of service to America.

From its beginnings at Sedalia Glider Base during the outbreak of World War II, to support of current Air Force contingencies, the wing stands ready to deploy worldwide at a moment's notice to perform fighter operations day and night.

AH-64 Apache

General Characteristics

Span: 48 feet
Maximum Speed: 186 mph
Length: 58 feet, 3 inches
Cruising Speed: 169-178 mph
Height: 16 feet, 10 inches
Range: 428 miles
Weight: 10.760 pounds
Service Ceiling: 10,200 feet
Armament: One M230A1 30mm machine gun and four underwing pylons for Hellfire and Hydra 70 missiles
Engines: Two General Electric T700-701C turboshafts, 1,857 horse power each
Crew: Two

The Apache was designed to be crashworthy. Armor made of boron carbide bonded to Kevlar protects the Apache crew and the helicopter's vital systems.

Blast shields, which protect against 23mm rounds or smaller high-explosive incendiary ammunition, separate the pilot and copilot/weapons system operator; thus, both crew members cannot be incapacitated by a single round.

Armored seats and airframe armor can withstand .50-caliber rounds.

Missouri Army National Guard

The Army National Guard is composed of a variety of units ready to respond to any emergency and to act in the defense of the nation. The 1st Battalion, 135th Aviation located at Whiteman and called the "First Attack Team," is a technically sophisticated unit with a direct combat mission.

The origin of the 1st Battalion, 135th Aviation begins in the Missouri National Guard near Warrensburg. Numbered volunteer companies served here until the creation of a new guard organization after World War I, which Missouri and Kansas into the 35th Infantry Division.

The unit was federalized in 1940 and underwent a number of name changes and missions. In 1947, the Headquarters Company of the 35th Division, with an aviation platoon, returned to Warrensburg. In 1968, the unit became the 635th Aviation Company. In 1978, it was given a new mission as Company D, 38th Aviation Battalion, and in 1986 the unit became the 635th Attack Helicopter Battalion. Finally in 1987, it became the 1st Battalion, 135th Aviation.

From 1929 into the 1930s, a unit drilled at Dockery Gymnasium on the campus of Central Missouri State Teachers College. In 1935, the aviation section of Headquarters Company rented the hangar at Skyhaven Airport.

Between 1939 and the 1950s, the unit drilled at 420 Holden St. After the building burned, a new building was built at 343 East Gay St. in 1958 where the unit remained until the opening of the Whiteman Air Force Base Armory.

In 1960, the unit searched across North-Central Missouri for a downed airliner. The unit supported civilian authorities during the Kansas City riots in 1968, and in 1973, the unit air-dropped hay to animals in Harrison County during the spring blizzard. In 1979, the unit assisted snowstorm victims and in 1993, supported operations during State Emergency Duty in the Great Flood of 1993.

The 1st Battalion, 135th Aviation vision is to modernize aircraft and further integrate with the active component to be an effective fighting force, as well as a strong resource for the governor of Missouri. The 135th also flies AH-64 Apache helicopters.

Navy Reserve

Mobile Inshore Undersea Warfare Unit 114 was commissioned on April 7, 1990, under the command of Commander Robert G. Alley, US Navy Reserve,.

The unit is staffed by 12 selected Reserve officers, 52 selected Reserve enlisted members and eight active-duty enlisted members.

Two months after its commissioning, MIUWU 114 departed for its first deployment. Spending June and July 1990, at Coast Guard Station Cape Disappointment, Wash., and Fort Stevens Park, Ore., the members of MIUWU 114 learned the basics of their principal piece of equipment, the AN/TSQ-108 Radar-Sonar Surveillance Central van.

MIUWU 114 performed its second deployment in April and May 1991.in the vicinities of Sabine Pass and Port O'Connor, Texas, for a counter-narcotics operation of Joint Task Force SIX and the U.S. Customs Service.

The unit's third deployment was spent at Fort Ord, Calif., and Naval Weapons Station Concord, Calif., Aug. 15-30, 1992. Participating in a defense exercise for Northern California, to validate a new doctrine for Naval Coastal Warfare.

During the unit's fourth deployment in July 27-Aug. 10, 1993. MIUWU 114 conducted counter-narcotics in support of Joint Task Force FIVE, the U.S. Customs Service and the National Park Service from Olympic National Park in northwest Washington state.

The unit's fifth deployment was a JTF-6 law enforcement operation performed in Southern California, Aug. 7-21, 1994.

The unit's sixth deployment was the unit's first overseas exercise. Freedom Banner 95 was a bilateral, multi-service maritime pre-positioning force exercise conducted in Pohang, Republic of Korea in July 1995.

Deployment seven took the unit to Naval Operations Denter, Kuwait, in support of a multinational exercise to improve the interoperability between coalition naval forces and the Kuwaiti coast guard.

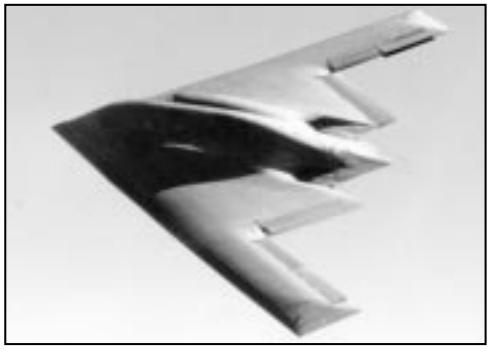
During the eighth deployment, MIUWU 114 members traveled to Queensland, Australia, to participate in Tandem Thrust, the largest overseas movement of IUW personnel and equipment since Desert Storm.

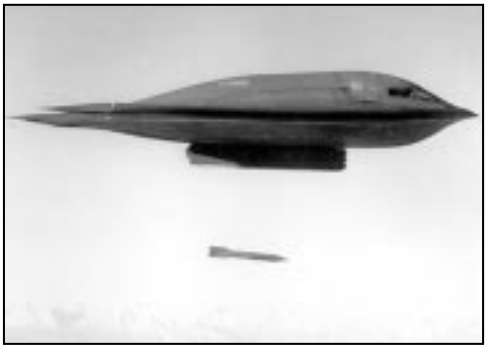
In 1998 Rim of the Pacific brought opportunities for MIUWU 114 to prove to the rest of the fleet the importance of the IUW mission.

In deployments 10-13 MIUWU 114 provided force protection for coalition naval forces in various overseas locations.

The Navy Littoral Surveillance System building will be the new home of MIUWU 114 on Whiteman upon its completion later this year.

MIUWU 114 trains monthly at Naval Reserve Center Kansas City and at field locations in the Kansas City area.





B-2 Spirit

General Characteristics

Primary function: Multi-role heavy bomber.
Prime contractor: Northrop Grumman B-2 Division.
Contractor team: Boeing Military Airplanes Co., Vought Aircraft Co., and General Electric Aircraft Engine Group and Hughes Training Inc. — Link Division
Thrust: 17,300 pounds each engine
Length: 69 feet
Height: 17 feet
Wingspan: 172 feet
Speed: High subsonic
Takeoff Weight (Typical): 336,500 pounds
Range: Intercontinental, unrefueled
Armament: Nuclear or conventional weapons
Payload: 40,000 pounds
Crew: Two pilots
Unit cost: Approximately $1.3 billion
Date Deployed: December 1993
Air Force Inventory: Active force: 21

HISTORY, continued from Page 2

lished its three major commands — SAC, Tactical Air Command and Military Air Command — on June 1, 1992. In their place rose two new major commands, Air Combat Command and Air Mobility Command, and a unified command U.S. Strategic Command. ACC assumed responsibility for the 351st Missile Wing and the 509th BW.

On April 1, 1993, the 509th returned to operational status when the people assigned to Detachment 509, the B-2 overseers for the past two years, were formally assigned to the wing. Host responsibilities for Whiteman AFB were assumed by the 509th BW on July 1, 1993, and after a 30-year hiatus, flying operations returned to the base when the first permanently assigned T-38 Talon landed on base July 20, 1993.

The first operational B-2 bomber arrived at Whiteman on Dec. 17, 1993. Named *"Spirit of Missouri,"* the aircraft flew its first operational B-2 sortie one week later. (The 21st and final B-2 was accepted into the inventory July 14 at Langley AFB, Va., where it was named *"Spirit of America."* Each aircraft is a Block 30 model.)

The Air Force Reserve's 442nd Fighter Wing with 22 A-10 Thunderbolt II aircraft arrived at Whiteman June 12, 1994. The unit moved from Richards-Gebaur Air Force Reserve Base, Kansas City, when it was closed by the Base Realignment and Closure Commission.

Nearly $33 million in new construction was required to beddown the new Whiteman organization. Interestingly, the 442nd was no stranger to Whiteman. In September 1943, the then-called 442nd Troop Carrier Group was activated at Sedalia Army Air Field.

The B-2 flew its first operational combat mission the first night of Operation Allied Force, March 24, 1999. During the air campaign, B-2s flew less than 1 percent of the combat sorties but dropped 11 percent of the total bombs.

During Operation Iraqi Freedom, March-April 2003, B-2s flew from Whiteman and from a deployed location to the heart of Saddam Hussein's regime and dealt crippling blows to the Iraqi dictators leadership, command and control, security, integrated air defense systems and weapons of mass destruction. Before week four of OIF B-2s hit nearly 600 targets with precision guided munitions.

Along with Whiteman's warfighting ability, the wing's community continues to develop in the 21st century. Base housing renovations are underway and are scheduled to be completed May 2004.

Whiteman Spirit Award

Senior Airman Slav Peytchev
509th Communications Squadron

Senior Airman Slav Peytchev, 509th Communications Squadron, received the Whiteman Spirit Award from Col. Doug Raaberg, 509th Bomb Wing commander, Monday.

Lt. Col. Fred Niblock, Wings Over Whiteman director, nominated Peytchev for this award.

Niblock said Peytchev's technical support with the development and updating of the Wings Over Whiteman Web page was invaluable.

"With little guidance more than my vision of messages we want to convey with the Web page, Petchev developed a world-class page," said Niblock.

Niblock said Peytchev's ability to handle changes has been no less than astounding. "I know Senior Airman Peytchev is giving the same level of service to others.

"As we got closer to the air show numerous changes were made in our effort to keep the public informed of the who, what, when, and where of the air show," said Niblock. "Peytchev met every challenge with a speedy 'Done - Sir.'"

Personally speaking

Duty title: Base Web master
Time on station: 2 years and 6 months
Time in service: 3
Hometown: Sofia, Bulgaria
Spouse: Galina
Goals: Complete my master's degree and become an officer.
Hobbies: Space science, hiking, traveling, science fiction and Formula One racing.
Pet Peeves: People who complain there is nothing to do at Whiteman when there are four universities offering classes.
Best thing about Whiteman: The opportunity to work with the most unique aircraft in the world.
What motivates your winning spirit? My wife, Galina, and the desire to push myself.
If you could change one thing about Whiteman, what would it be? Build an indoor swimming pool.

Submitting a Whiteman Spirit Award

Individuals are nominated from within their units or by customers impressed with the superior customer service provided by the nominee.

If you know someone who has the Whiteman Spirit, send the nomination to the 509th Bomb Wing Public Affairs Office, Bldg. 509, Suite 111, or e-mail whiteman.spirit@Whiteman.af.mil.

Douglas DC-3

The development of the Douglas DC-3 was brought about by the commercial airlines demand for an economical passenger-carrying airplane.

Up to 1934, airline passenger craft were too slow and carried too few passengers to be really profitable. United Air Lines had ordered sixty of the new Boeing 247s, the first truly modern airliners and had effectively tied up production.

The 247 carried ten passengers at 160 mph and made all other transports obsolete. The other carriers were thus forced to find another plane if they wished to be competitive in the passenger-carrying business.

Since 1935, 803 commercial transports and 10,123 military versions have been built. In addition, about 2,000 have been constructed under license in Russia (Li-2) and about sixty in Japan. In service since 1936, the DC-3 is still in use today throughout the world.

Wingspan: 28.95 m (95 ft.)
Length: 19.66 m (64 ft. 6 in.)
Height: 5 m (16 ft. 11 in.)
Weight: 11,430 kg (25,200 lb.)

This space is reserved for advertisements

B-52 Stratofortress

General Characteristics

Primary Function: Heavy bomber

Contractor: Boeing Military Airplane Co.

Power plant: Eight Pratt & Whitney engines TF33-P-3/103 turbofan

Thrust: Each engine up to 17,000 pounds

Length: 159 feet, 4 inches

Height: 40 feet, 8 inches

Wingspan: 185 feet

Speed: 650 miles per hour (Mach 0.86)

Ceiling: 50,000 feet

Weight: Approximately 185,000 pounds empty

Maximum Takeoff Weight: 488,000 pounds

Range: Unrefueled 8,800 miles (7,652 nautical miles)

Armament: Approximately 70,000 pounds mixed ordnance — bombs, mines and missiles. (Modified to carry air-launched cruise missiles, Harpoon anti-ship and Have Nap missiles.)

Crew: Five (aircraft commander, pilot, radar navigator, navigator and electronic warfare officer)

Accommodations: Six ejection seats

Unit Cost: $74 million

Date Deployed: February 1955

Inventory: Active force, 85; Reserve, 9

B-1B Lancer

General Characteristics

Primary Function: Long-range, multi-role, heavy bomber

Builder: Rockwell International, North American Aircraft

Operations air frame and integration: Offensive avionics, Boeing Military Airplane; defensive avionics, AIL Division

Thrust: 30,000-+ pounds with afterburner, per engine

Length: 146 feet

Wingspan: 137 feet extended forward, 79 feet swept aft

Height: 34 feet

Weight: Empty, approximately 190,000 maximum takeoff weight: 477,000 pounds

Speed: 900-plus mph (Mach 1.2 at sea level)

Range: Intercontinental, unrefueled

Ceiling: More than 30,000 feet

Crew: Four (aircraft commander, pilot, offensive systems officer and defensive systems officer)

Armament: Up to 84 MK82 conventional 500-pound bombs and 30 CBU-87/89/97. Also can be reconfigured to carry a wide range of nuclear weapons

Date Deployed: June 1985

Unit Cost: $200-plus million

Inventory: Active force, 75 primary mission aircraft inventory, 73 (actual), 2 (test)

Oscar-01 Launch Control Facility

From 1964 to 1993, Whiteman's Oscar-01 served as command center for ten intercontinental ballistic missiles. Oscar was one of 15 such facilities that were spread out across west central Missouri.

Oscar stood out, however, as it was the only such operational site actually located on a base. Today, the site is a tribute to all Air Force members who pulled alert duty and kept the system operational during the Cold War. As such, Oscar is open to tours.

The 351st Strategic Missile Wing, Oscar's original owner, was one of the most decorated missile wings in AF history.

The ladder allowed crews and maintenance personnel to enter and exit the downstairs should the elevator malfunction. Like the elevator shaft, it is 45 feet beneath the surface of the earth.

The blast door guarded the downstairs against the effects of a nuclear blast. Even though it weighs eight tons, the 8 feet and 10 inches tall, 7 feet and 6 inches wide, and 21 feet thick the door could be opened and closed with one hand due to its large hinges and near perfect balancing.

The launcher control equipment building housed most of the life support systems needed to keep the missile crews living and functioning in case of nuclear war. A diesel generator, ventilation system, and an air filtering device ensured the crews survived underground for up to 45 days.

Oscar the Grouch and his eight-ton blast door guarded the entrance to the capsule. Oscar's missile crews had the artwork painted because they seemed to be always conducting tours due to the site's unique on-base location. Thus, they were always 'grouchy.' The capsule was the heart and soul of the Minuteman II missile system. From there, the ever-present two person crews monitored their ten missiles that were an average of 3-5 miles away from Oscar. Of course, the crews could, if directed to do so, launch their missiles.

Thankfully, due to vigilance and dedication of the missile crews and support personnel of the Minuteman system, those launch orders were never issued.

Oscar-01 Tours

Are offered 10 a.m. to 3 p.m. Saturday.

Courtesy photo

The ladder allowed crews and maintenance personnel to enter and exit the downstairs should the elevator malfunction. Like the elevator shaft, it is 45 feet beneath the surface of the earth. As you can see, the users received a breather in that a small platform (visible here) half-way down, gave personnel a chance to catch their breath.

Oscar the Grouch and his 8-ton blast door guarded the entrance to the capsule. The 351st Missile Wing crews had the artwork painted because they seemed to be always conducting tours due to the site's unique on-base location. Thus, they were always "grouchy."

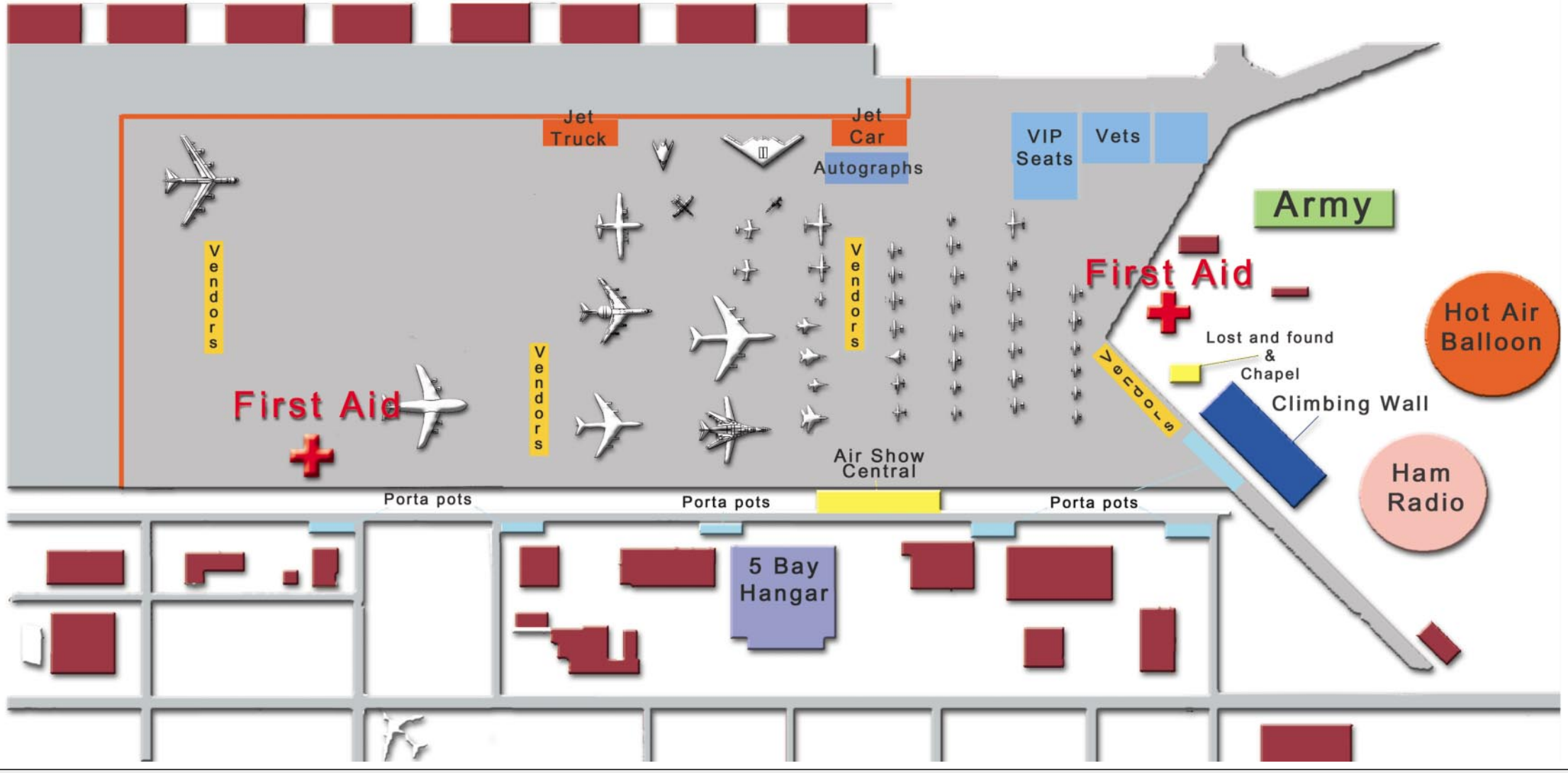
CG-4 Waco Glider

The CG-4A was the most widely used U.S. troop/cargo glider of World War II. Flight testing began in 1942 and eventually more than 12,000 CG-4As were procured. Fifteen companies manufactured CG-4s, including the Wicks Aircraft Company of Kansas City, Mo., with 1,074 built by the Waco Aircraft Company of Troy, Ohio.

Whiteman Air Force Base was originally activated on Aug 6, 1942, as Sedalia Glider Base. In November 1942, the installation became Sedalia Army Air Field and was assigned to the 12th Troop Carrier Command of the Army Air Force. The field served as a training site for glider tactics and paratroopers, and assigned aircraft included the CG-4A glider, and the Douglas C-46 and C-47. The CG-4A was constructed of fabric-covered wood and metal, and was crewed by a pilot and copilot. It could carry 13 troops and their equipment or either a jeep, a quarter-ton truck, or a 75 mm howitzer loaded through the upward-hinged nose section. C-46s and C-47s usually were used as tow aircraft.

CG-4As went into operation in July 1943 during the Allied invasion of Sicily. They participated in the D-Day assault on France on June 6, 1944, and in other important airborne operations in Europe and in the China-Burma-India Theater. Until late in the war, gliders were generally considered expendable in combat and were abandoned or destroyed after landing.

Wings Over Whiteman Map



Autographs

C-17 Globemaster

General Characteristics

Primary Function: Cargo and troop transport
Prime Contractor: Boeing Aerospace Company
Power Plant: Four Pratt & Whitney F117-PW-100 turbofan engines
Thrust: 40,440 pounds, each engine
Wingspan: 169 feet, 10 inches (to winglet tips)
Length: 174 feet (53 meters)
Height: 55 feet, 1 inch (16.79 meters)
Cargo Compartment: length, 88 feet; width, 18 feet; height, 12 feet 4 inches
Speed: 450 knots at 28,000 feet (Mach .74)
Service Ceiling: 45,000 feet at cruising speed
Range: Global with in-flight refueling
Crew: Three (two pilots and one loadmaster)
Maximum Peacetime Takeoff Weight: 585,000 pounds
Load: 102 troops/paratroops; 48 litter and 54 ambulatory patients and attendants; 170,900 pounds of cargo (18 pallet positions)
Unit Cost: $180 million (FY96 constant dollars)
Date Deployed: June 1993
Inventory: 76

E-3 Sentry

General Characteristics

Primary Function: Surveillance, command, control and communications
Builder: Boeing Aerospace Co.
Power Plant: Four Pratt & Whitney TF33-PW-100A turbofan engines
Thrust: 21,000 pounds each engine
Length: 145 feet, 6 inches
Wingspan: 130 feet, 10 inches
Height: 41 feet, 4 inches
Rotodome: 30 feet in diameter, 6 feet thick, mounted 11 feet above fuselage
Speed: Optimum cruise 360 mph (Mach 0.48)
Ceiling: Above 29,000 feet
Maximum Takeoff Weight: 347,000 pounds
Endurance: More than 8 hours (unrefueled)
Unit Cost: Approximately $270 million
Crew: Flight crew of four plus mission crew of 13-19 specialists
Date Deployed: March 1977
Inventory: Active force, 32

C-130 Hercules

General Characteristics

Primary Function: Tactical and intratheater airlift

Contractor: Lockheed Martin Aeronautical Systems Company

Power Plant: Four Allison T56-A-15 turboprops; 4,300 horsepower, each engine

Length: 97 feet, 9 inches

Height: 38 feet, 3 inches

Wingspan: 132 feet, 7 inches

Cargo Compartment: Length, 41 feet; width, 108 inches; height, 9 feet. Rear ramp length, 88 inches; width, 108 inches; height, 76 inches

Speed: 374 mph (Mach 0.57) at 20,000 feet

Ceiling: 33,000 feet with 45,000 pounds payload

Maximum Takeoff Weight: 155,000 pounds

Range: 2,356 miles (2,049 nautical miles) with maximum payload; 2,500 miles (2,174 nautical miles) with 25,000 pounds cargo; 5,200 miles (4,522 nautical miles) with no cargo

Crew: Five (two pilots, navigator, flight engineer and loadmaster); up to 92 troops or 64 paratroops or 74 litter patients or six standard freight pallets with a maximum of 45,000 pounds of cargo.

Unit Cost: $14.1 million

KC-135 Stratotanker

General Characteristics

Primary Function: Aerial refueling
Prime Contractor: Boeing Aerospace Company
Power Plant: KC-135R/T, Four CFM-International CFM-56 turbofan engines; KC-135E, Four Pratt & Whitney TF-33-PW-102 turbofan engines
Thrust: KC-135R, 21,634 pounds each engine; KC-135E, 18,000 pounds each engine
Wingspan: 130 feet, 10 inches
Length: 136 feet, 3 inches
Height: 41 feet, 8 inches
Speed: 530 miles per hour at 30,000 feet
Ceiling: 50,000 feet
Range: 1,500 miles with 150,000 pounds of transfer fuel; ferry mission, up to 11,015 miles
Maximum Takeoff Weight: 322,500 pounds
Maximum Transfer Fuel Load: 200,000 pounds
Maximum Cargo Capability: 83,000 pounds
Crew: Four
Unit Cost: $52.2 million
Date Deployed: August 1965
Inventory: Active duty 256

C-5 Galaxy

General Characteristics

Primary function: Outsized cargo transport
Contractor: Lockheed Georgia Co.
Power Plant: Four General Electric TF-39 engines
Thrust: 41,000 pounds, each engine
Wingspan: 222.9 feet
Length: 247.1 feet
Height: 65.1 feet
Cargo Compartment: height, 13.5 feet; width, 19 feet; length, 143 feet, 9 inches
Takeoff/Landing Distances: 8,300 feet takeoff fully loaded; and 4,900 feet land fully loaded
Pallet Positions: 36
Speed: 518 miles per hour (.68 Mach)
Range: 6,320 nautical miles
Crew: 7 (pilot, co-pilot, two flight engineers and three loadmasters)
Date Deployed: 1970

F-15 Eagle

General Characteristics

Primary function: Tactical fighter
Contractor: McDonnell Douglas Corp.
Power plant: Two Pratt & Whitney F100-PW-220 or 229 turbofan engines with afterburners
Thrust: (C/D models) 23,450 pounds each engine
Wing span: 42.8 feet
Length: 63.8 feet
Height: 18.5 feet
Speed: 1,875 mph (Mach 2.5 plus)
Maximum takeoff weight: (C/D models) 68,000 pounds
Ceiling: 65,000 feet
Range: 3,450 miles (3,000 nautical miles) ferry range with conformal fuel tanks and three external fuel tanks
Crew: F-15A/C: one. F-15B/D/E: two
Armament: One internally mounted M-61A1 20mm, six-barrel cannon with 940 rounds of ammunition; four AIM-9L/M Sidewinder and four AIM-7F/M Sparrow air-to-air missiles, or eight AIM-120 AMRAAMs, carried externally.
Unit Cost: $15 million
Date deployed: July 1972
Inventory: Active force, 608; Reserve, 0; ANG, 45.

Autographs

F-16 Fighting Falcon

General Characteristics

Primary Function: Multirole fighter
Builder: Lockheed Martin Corp.
Power Plant: F-16C/D: one Pratt & Whitney F100-PW-200/220/229 or General Electric F110-GE-100/129
Thrust: F-16C/D, 27,000 pounds
Length: 49 feet, 5 inches
Height: 16 feet
Wingspan: 32 feet, 8 inches
Speed: 1,500 mph (Mach 2 at altitude)
Ceiling: Above 50,000 feet
Maximum Takeoff Weight: 37,500 pounds
Range: More than 2,000 miles ferry range (1,740 nautical miles)
Armament: One M-61A1 20 mm multibarrel cannon with 500 rounds; external stations can carry up to six air-to-air missiles, conventional air-to-air and air-to-surface munitions, and electronic countermeasure pods.
Unit cost: F-16C/D, $20 million plus
Crew: F-16C: one; F-16D: one or two
Date Deployed: January 1979
Inventory: Active force, 444; Air National Guard, 305; Reserve, 60.

F-18 Hornet

General Characteristics C and D models

Primary Function: Multi-role attack and fighter aircraft
Contractor: Prime: McDonnell Douglas; Major Subcontractor: Northrop Grumman Corp.
Unit Cost: $24 million
Propulsion: Two F404-GE-402 enhanced performance turbofan engines
Thrust: 17,700 pounds static thrust per engine
Length: 56 feet
Height: 15 feet 4 inches
Maximum Take Off Gross Weight: 51,900 pounds
Wingspan: 40 feet 5 inches
Range: (w/external tanks):
Fighter: 1,379 nautical miles;
Attack: 1,333 nautical miles (1532.9 miles)
Ceiling: 50,000+ feet
Speed: Mach 1.7+
Crew for A,C and E models: One
Crew for B,D and F models: Two
Armament: One M61A1/A2 Vulcan 20 mm cannon
External payload: AIM 9 Sidewinder, AIM 7 Sparrow, AIM-120 AMRAAM, Harpoon, Harm, Shrike, SLAM, SLAM-ER, Walleye, Maverick missiles; Joint Stand-Off Weapon; Joint Direct Attack Munition; various general-purpose bombs, mines and rockets.

General Characteristics, E and F models

Primary Function: Multi-role attack and fighter aircraft
Contractor: McDonnell Douglas
Unit Cost: $35 million
Propulsion: Two F414-GE-400 turbofan engines
Thrust: 22,000 pounds of static thrust per engine
Length: 60.3 feet
Height: 16 feet
Maximum Take Off Gross Weight: 66,000 pounds
Wingspan: 44.9 feet
Ceiling: 50,000+ feet
Speed: Mach 1.8+
Crew: One on A and C models
Crew for A,C and E models: One
Crew for B,D and F models: Two
Armament: One M61A1/A2 Vulcan 20 mm cannon;
External payload: Same as C and D models
Date Deployed: First flight: December 1995

F-14 Tomcat

General Characteristics

Function: Carrier-based multi-role strike fighter
Contractor: Grumman Aerospace Corp.
Unit Cost: $38 million
Propulsion: F-14A: Two Pratt & Whitney TF-30P-414A turbofan engine with afterburners
F-14B and F-14D: Two General Electric F110-GE-400 turbofan engines with afterburners, 27,000 pounds of thrust each
Length: 61 feet, 9 inches
Height: 16 feet
Maximum Takeoff Weight: 72,900 pounds
Wingspan: 64 feet unswept, 38 feet swept
Ceiling: Above 50,000 feet
Speed: Mach 2+
Crew: Two: pilot and radar intercept officer
Armament: Up to 13,000 pounds to include AIM-54 Phoenix missile, AIM-7 Sparrow missile, AIM-9 Sidewinder missile, air-to-ground precision strike ordnance, and one M61A1/A2 Vulcan 20mm cannon.
Date Deployed: First flight: December 1970

F-117A Nighthawk

Mission

The F-117A Nighthawk is the world's first operational aircraft designed to exploit low-observable stealth technology.

Features

The unique design of the single-seat F-117A provides exceptional combat capabilities. About the size of an F-15 Eagle, the twin-engine aircraft is powered by two General Electric F404 turbofan engines and has quadruple redundant fly-by-wire flight controls. Air refuelable, it supports worldwide commitments and adds to the deterrent strength of the U.S. military forces.

The F-117A can employ a variety of weapons and is equipped with sophisticated navigation and attack systems integrated into a state-of-the-art digital avionics suite that increases mission effectiveness and reduces pilot workload. Detailed planning for missions into highly defended target areas is accomplished by an automated mission planning system developed specifically to take advantage of the unique capabilities of the F-117A.

Background

The first F-117A was delivered in 1982 and the last delivery was in the summer of 1990. The F-117A production decision was made in 1978 with a contract awarded to Lockheed Advanced Development Projects, the "Skunk Works," in Burbank, Calif. The first flight was in 1981, only 31 months after the full-scale development decision. Air Combat Command's only F-117A unit, the 450th Tactical Group, (now the 49th Fighter Wing, Holloman Air Force Base, N.M.), achieved operational capability in October 1983.

Streamlined management by Aeronautical Systems Center, Wright-Patterson AFB, Ohio, combined breakthrough stealth technology with concurrent development and production to rapidly field the aircraft. The F-117A program has demonstrated that a stealth aircraft can be designed for reliability and maintainability. The aircraft maintenance statistics are comparable to other tactical fighters of similar complexity. Logistically supported by Sacramento Air Logistics Center, McClellan AFB, Calif., the F-117A is kept at the forefront of technology through a planned weapon system improvement program located at USAF Plant 42 at Palmdale, Calif.

General Characteristics

Primary Function: Fighter/attack
Contractor: Lockheed Aeronautical Systems Co.
Power Plant: Two General Electric F404 engines
Length: 65 feet, 11 inches
Height: 12 feet, 5 inches
Weight: 52,500 pounds
Wingspan: 43 feet, 4 inches
Speed: High subsonic
Range: Unlimited with air refueling
Armament: Internal weapons carriage
Unit Cost: $45 million
Crew: One
Date Deployed: 1982
Inventory: Active force, 54; Army National Guard, 0; Reserve, 0

Take precautions to avoid heat-related injuries

Eager to show off the B-2 and highlight the technological advances in airpower, this should be a weekend of fun, pride and excitement for people of all ages.

Unfortunately, everyone is at risk for possible heat injuries during the air show and precautions should be taken to minimize sunburn, heat rash, heat cramps, heat exhaustion and heat stroke.

Therefore, people need to drink plenty of fluids before, during and after involvement in air show activities.

People can replenish lost fluids throughout the day by drinking 8 ounces of water or sport drinks every hour even if they don't feel thirsty.

If drinking alcohol, use caution and drink extra water to prevent dehydration.

Free water is available on the flight line throughout the air show. People can also bring their own water.

A handy "Clip and Save" is provided to highlight the signs and symptoms of sunburn and heat stress injuries and treatment to follow.

As a reminder, infants, elderly and anyone not acclimated to Missouri's summertime heat should take special precautions to wear sunscreen and drink fluids to prevent a serious heat-related injury.

During the air show, if anyone happens to think someone is suffering from possible heat-related problems these steps may be helpful.

✔ Assist the person to an area out of the immediate sun (shady side of a building, air-conditioned vehicle, medical tent, etc.)

✔ If the person has tight or constrictive clothing on, loosening those items (when appropriate) to allow air circulation to cool the skin.

✔ Offer a cool drink of water. Avoid ice-cold beverages, alcohol or caffeine as each of these may cause additional problems.

✔ Look for someone to assist if the person continues to have problems.

Bystanders may assist by locating medical personnel circulating in golf carts and at the medical tent. This assistance may actually speed transport to appropriate care and prevent an adverse outcome. **(Courtesy of the 509th Medical Group)**

Sunburn

✓ First degree — red and painful skin
✓ Second degree — blistering and/or peeling

Prevention: Limit exposure to bare skin. Use sunscreen of SPF 15 or higher.

Heat rash

✓ Red rash, itching

Prevention: keep skin clean and dry

Heat cramps

✓ Sudden onset
✓ Hot, moist skin
✓ Normal pulse, normal to slightly high body temperature

Prevention and treatment: Move to a shaded area and loosen clothing. Replace fluids, wait to see if cramps go away and seek medical attention if cramps persist.

Heat exhaustion

✓ Heavy sweating
✓ Intense thirst from dehydration
✓ Cool, moist skin (clammy and pale)
✓ Weak rapid pulse (120 to 200)
✓ Low to normal blood pressure
✓ Fatigue or loss of coordination

Prevention and treatment: Move to shaded area and cool rapidly. Fan the victim or pour cold water over them. Loosen clothing and elevate victim's legs and massage limbs. Give replacement fluids and wait for medical assistance to arrive.

Heat stroke

✓ High body temp. (over 103 degrees F)
✓ Absence of sweating
✓ Hot, red, flushed skin with a rapid pulse
✓ Difficulty breathing, elevated blood pressure, confusion, nausea and/or vomiting.

Prevention and treatment: SEEK IMMEDIATE MEDICAL TREATMENT! Follow procedure for heat exhaustion.